

Trend Study 2-28-01

Study site name: North Eden.

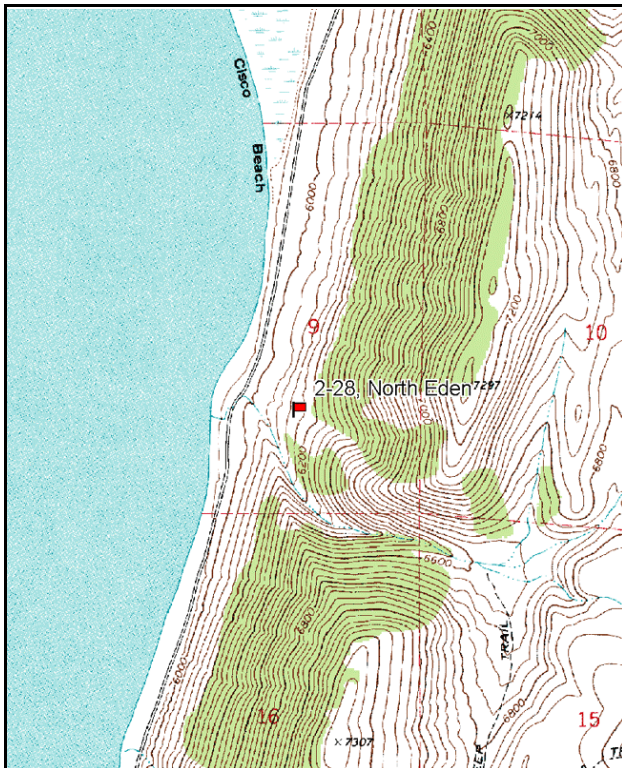
Vegetation type: Big Sagebrush.

Compass bearing: frequency baseline 160 degrees magnetic.

Frequency belt placement: line 1 (11 & 95ft), line 2 (59ft), line 3 (34ft), line 4 (71ft).

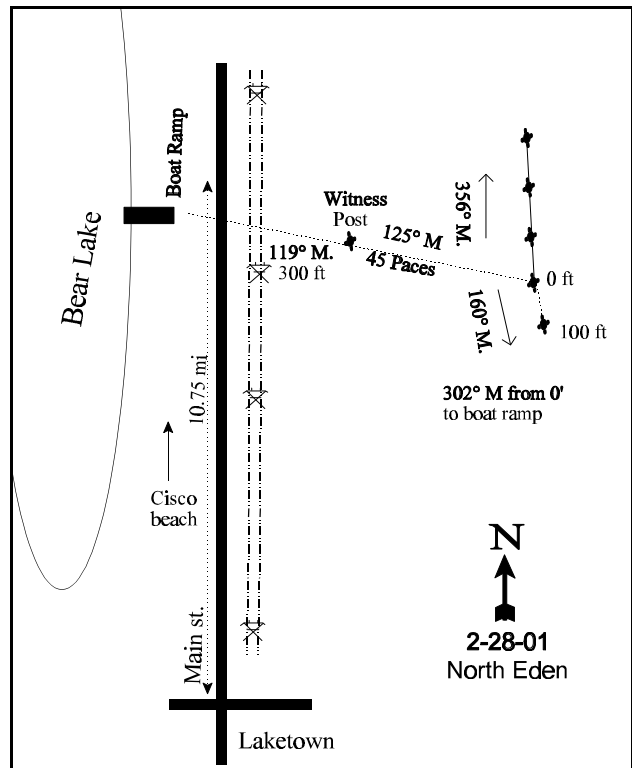
LOCATION DESCRIPTION

From Bear Lake road and Main Street in Laketown, proceed north on Main Street 10.75 miles along the east shore. Turn right onto a dirt road proceeding to a power line. From the power line, walk up the slope on a bearing of 119 degrees magnetic for 300 feet to a witness post. From the witness post, walk 45 paces at 119 degrees magnetic to the 0-foot stake of the baseline, marked with browse tag #7979. The first 100 feet of the baseline runs 160 degrees magnetic. The rest of the baseline runs off the 0-foot baseline stake and runs in a direction of 356 degrees magnetic.



Map Name: Bear Lake South

Township 14N, Range 6E, Section 9



Diagrammatic Sketch

UTM 4645840 N, 477747 E

DISCUSSION

Trend Study No. 2-28

The North Eden trend study is located on the east side of Bear Lake between north and South Eden Canyons. This area mostly faces west and is characterized by steep slopes that gradually level off as they get to the lake. The study site is on a moderate sloping (25%) bench at 6,160 feet in elevation. The vegetation type is a mixture of mountain big sagebrush/black sagebrush/grass interrupted by scattered Utah juniper. Animal use is moderate to heavy and divided between deer, cattle and possibly sheep in the past. Quadrat frequency for deer pellet groups was moderately high at 39% in 1996. Quadrat frequency remained similar in 2001 at 36%. A pellet group transect read on the site in 2001 estimated 108 deer days use/acre (266 ddu/ha). Cattle use was estimated at 3 cow days use/acre (7 cdu/ha). The cattle pats encountered appear to be from last year, while nearly all of the deer pellet groups appeared to be from winter use. Rabbit sign was also fairly abundant.

According to SCS maps, soil at the site is "Dagan Gravelly Silt Loam," a moderately deep, well drained soil derived from quartzite-sandstone conglomerate. This is a moderately calcareous, mildly alkaline soil with low water holding capability. Potential rooting depth is not significantly impaired even though there is sometimes a slight calcium carbonate accumulation at about 28 inches in depth. All the Dagan soils are subject to rapid runoff and have high erosion hazards (Campbell and Lacey 1982). Soil analysis of the site shows it has a clay loam texture, a neutral pH, and an estimated effective rooting depth (see methods) of nearly 12 inches. There is little rock on the surface or within the profile and no evidence of a hardpan. Bare ground isn't abundant, but where protective vegetation and litter cover are limited, erosion is occurring. The erosion condition class was determined to be slight in 2001.

The key browse species are Wyoming big sagebrush and black sagebrush. Density of black sagebrush declined from 2,065 to 440 plants/acre between 1990 and 1996. Due to the low number of dead plants and low decadency rate in 1996, this change in density is mostly the result of the much larger sample used in 1996 which lengthened the baseline from 100 feet to 400 feet. This new estimate would be more representative of the whole area. In contrast, Wyoming big sagebrush shows a continually declining density from 5,332 plants/acre in 1984 to 2,800 by 1996 and 2,560 in 2001. Dead plants were nearly as numerous as live ones in 1996 (1,900 plants/acre), indicating a die-off. The ratio of dead to live plants was 1 dead plant to 1.5 live plants. Utilization of both sagebrush species has been intense in the past (1984), but use of black sagebrush was moderate in 1996 and mostly light in 2001. Wyoming big sagebrush has displayed consistently moderate to heavy use over the years. Percent decadence has remained consistently high, ranging from 60% in 1990 to 46% in 1996. In 1996 and 2001, about one-third of the decadent sagebrush were classified as dying. Reproduction has been inadequate to maintain the population since 1990 due to poor numbers of seedlings and young.

Other shrub species include stickleaf low rabbitbrush, white rubber rabbitbrush, prickly pear, and Utah juniper. None occur very frequently or sustain much browsing use. They will likely remain secondary in importance. Point-center quarter data from 2001 estimated 72 juniper trees/acre with an average diameter of just over 3 inches. Overhead canopy cover was estimated at 9%.

Herbaceous cover consists mainly of perennial grasses. Annual cheatgrass is also abundant and accounted for 21% of the grass cover in 1996, declining to 10% in 2001. Perennial grasses are best represented by bluebunch wheatgrass, Sandberg bluegrass, and bottlebrush squirreltail. Forbs are uncommon and produce only 2% cover.

1984 APPARENT TREND ASSESSMENT

The soil is in poor condition. Pedestalling, rills, and flow patterns indicate active erosion is occurring. Cover is irregular in nature and the many areas of bare soil provide ready erosion pathways. Vegetative trend appears stable or slightly down. In the future it will be important to monitor the relative abundance of the two key browse species, black sagebrush and Wyoming big sagebrush.

1990 TREND ASSESSMENT

Trend for browse is down. Wyoming big sagebrush and black sagebrush have both declined and many dead and decadent sagebrush are evident. The Wyoming big sagebrush population is 60% decadent, while the black sagebrush population improved from 70% to 32% decadency. As opposed to the heavily hedged growth forms recorded in 1984, the sagebrush appear to be only moderately hedged. Trend for the herbaceous understory is up due to an increase in the sum of nested frequency of perennial grasses and forbs. Although the grasses have been heavily grazed, the frequency of bluebunch wheatgrass has increased significantly. The soil trend is down slightly. Cover of cryptograms and litter decreased, leading to an increase in the amount of bare soil. However, this would be expected with the many years of drought. Sheet and gully erosion are noticeable.

TREND ASSESSMENT

soil - down slightly (2)

browse - down (1)

herbaceous understory - up (5)

1996 TREND ASSESSMENT

Trend for soil is up with a 57% decline in percent bare ground and a slight increase in litter cover. Erosion is still occurring but it is localized and not severe. The larger sample used in 1996 estimates cover of black sagebrush at only about 2%, while that of Wyoming big sagebrush at 14% cover. This new, much larger sample estimated only 440 black sagebrush plants/acre instead of 2,065 estimated in 1990. The larger sample better estimates shrub populations which sometimes have aggregated and/or discontinuous distributions. The lack of significant numbers of dead black sagebrush plants encountered in 1996 (40 plants/acre) would present evidence that no significant die-off of black sagebrush has occurred. Black sagebrush displays a stable trend with light to moderate use, generally good vigor, and a low decadency rate. Wyoming big sagebrush appears to have a slightly downward trend. Total density declined 19% since 1990. Use is more moderate, yet vigor is still poor on 26% of the population. Percent decadency has declined, but it is still high at 46%. Recruitment is down with 28% of the decadent shrubs classified as dying. The extremely high proportion of dead plants (1,900 plants/acre) indicates that the population has declined. Taking all these factors into consideration, the Wyoming big sagebrush population will likely decline further in the future and the remaining plants will be younger and more vigorous. The herbaceous understory trend is slightly down. The sum of nested frequency for perennial grasses declined slightly since 1990, while the nested frequency for bluebunch wheatgrass declined significantly. Sum of nested frequency for perennial forbs also declined by 64%.

TREND ASSESSMENT

soil - up (5)

browse - slightly down (2)

herbaceous understory - slightly down (2)

2001 TREND ASSESSMENT

Trend for soil is stable with similar ground cover characteristics compared to 1996. There is some erosion occurring in the form of pedestalling, flow patterns, rills, and soil movement. The erosion condition class was determined to be slight. However, there is adequate vegetation and litter cover on the site. Trend for browse is down slightly for both black sagebrush and Wyoming big sagebrush. Both sagebrush have declined in density, increased in decadence, and display poor reproduction. Wyoming big sagebrush accounts for 53% of the browse cover. It shows similar moderate to heavy use that was reported in 1996. Percent decadence has increased from 46% to 56% with one-third (420 plants/acre) of the decadent plants sampled classified as dying. Reproduction is poor and not nearly enough to maintain the population. The population will further decline unless normal precipitation patterns return. Trend for the herbaceous understory is considered stable. Sum of nested frequency for perennial grasses and forbs has declined slightly, yet the dominant species, bluebunch wheatgrass, has increased slightly. Sandberg bluegrass has declined significantly in nested frequency, but cover is similar to 1996 estimates. Forbs are still lacking as all species combined produce only 2% cover.

TREND ASSESSMENT

soil - stable (3)

browse - down slightly (2)

herbaceous understory - stable (3)

HERBACEOUS TRENDS --

Herd unit 02 , Study no: 28

Type	Species	Nested Frequency				Quadrat Frequency				Average Cover %	
		'84	'90	'96	'01	'84	'90	'96	'01	'96	'01
G	Agropyron spicatum	_a 161	_b 210	_a 137	_a 155	71	83	54	56	7.19	10.05
G	Bromus tectorum (a)	-	-	152	173	-	-	52	60	4.32	2.15
G	Oryzopsis hymenoides	3	-	-	14	2	-	-	4	.03	.86
G	Poa secunda	_a 210	_c 303	_c 284	_b 239	85	95	89	79	8.09	7.41
G	Sitanion hystrix	_{bc} 26	_a 5	_b 47	_{ab} 20	13	2	18	8	1.29	.75
Total for Annual Grasses		0	0	152	173	0	0	52	60	4.32	2.15
Total for Perennial Grasses		400	518	468	428	171	180	161	147	16.61	19.08
Total for Grasses		400	518	620	601	171	180	213	207	20.94	21.24
F	Arabis spp.	-	-	-	1	-	-	-	1	-	.00
F	Astragalus convallarius	_b 9	_a -	_a -	_b 9	6	-	-	5	-	.02
F	Astragalus spp.	2	-	-	-	1	-	-	-	-	-
F	Balsamorhiza sagittata	-	-	1	4	-	-	1	2	.30	.21
F	Calochortus nuttallii	-	3	-	-	-	1	-	-	-	-
F	Chaenactis douglasii	-	-	3	-	-	-	1	-	.00	-
F	Collinsia parviflora (a)	-	-	7	5	-	-	2	3	.18	.01
F	Cordylanthus ramosus (a)	-	-	30	55	-	-	14	16	.48	7.51
F	Crepis acuminata	_a 9	_b 33	_{ab} 16	_b 25	4	17	8	13	.14	.56

T y p e	Species	Nested Frequency				Quadrat Frequency				Average Cover %	
		'84	'90	'96	'01	'84	'90	'96	'01	'96	'01
F	Cryptantha spp.	1	2	-	-	1	2	-	-	-	-
F	Descurainia pinnata (a)	-	-	-	3	-	-	-	1	-	.00
F	Erigeron spp.	-	5	6	11	-	2	2	4	.09	.48
F	Hackelia patens	-	-	-	1	-	-	-	1	-	.00
F	Holosteum umbellatum (a)	-	-	1	-	-	-	1	-	.00	-
F	Penstemon spp.	-	-	-	5	-	-	-	2	-	.01
F	Phlox hoodii	_a 6	_b 26	_a -	_a 6	3	12	-	2	-	.03
F	Phlox longifolia	_a -	_c 149	_b 53	_a 1	-	58	22	1	.19	.00
F	Sphaeralcea grossulariaefolia	-	-	3	-	-	-	1	-	.15	-
F	Tragopogon dubius	_b 10	_a -	_a -	_a -	6	-	-	-	-	-
F	Unknown forb-perennial	_a -	_b 12	_a -	_a -	-	6	-	-	-	-
Total for Annual Forbs		0	0	38	63	0	0	17	20	0.67	7.53
Total for Perennial Forbs		37	230	82	63	21	98	35	31	0.88	1.34
Total for Forbs		37	230	120	126	21	98	52	51	1.55	8.88

Values with different subscript letters are significantly different at alpha = 0.10 (annuals excluded)

BROWSE TRENDS --

Herd unit 02 , Study no: 28

T y p e	Species	Strip Frequency		Average Cover %	
		'96	'01	'96	'01
B	Artemisia nova	10	8	1.60	1.92
B	Artemisia tridentata wyomingensis	80	72	14.01	11.19
B	Atriplex canescens	0	0	-	.38
B	Chrysothamnus viscidiflorus viscidiflorus	13	17	1.30	2.28
B	Eriogonum microthecum	2	0	-	-
B	Gutierrezia sarothrae	0	1	-	-
B	Juniperus osteosperma	3	3	3.94	5.14
B	Opuntia polyacantha	3	3	.03	-
Total for Browse		111	104	20.89	20.92

CANOPY COVER --

Herd unit 02 , Study no: 28

Species	Percent Cover		Trees per Acre		Average diameter (in)	
	'96	'01	'96	'01	'96	'01
Juniperus osteosperma	7	9	39	72	4.1	3.1

Point-Quarter Tree Data

BASIC COVER --

Herd unit 02 , Study no: 28

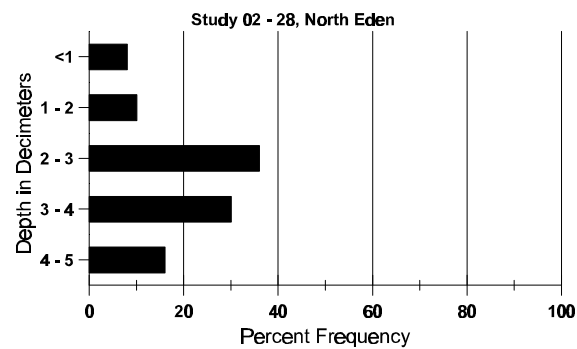
Cover Type	Nested Frequency		Average Cover %			
	'96	'01	'84	'90	'96	'01
Vegetation	366	337	2.25	10.00	43.52	45.41
Rock	59	24	1.00	1.00	.74	.28
Pavement	68	92	0	0	.75	1.60
Litter	392	390	54.25	43.25	44.15	61.11
Cryptogams	211	145	20.50	16.00	11.19	6.84
Bare Ground	195	164	22.00	29.75	12.75	12.17

SOIL ANALYSIS DATA --

Herd Unit 02, Study no: 28, North Eden

Effective rooting depth (in)	Temp °F (depth)	PH	%sand	%silt	%clay	%0M	PPM P	PPM K	dS/m
11.8	62.6 (12.7)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A

Stoniness Index



PELLET GROUP FREQUENCY --

Herd unit 02 , Study no: 28

Type	Quadrat Frequency		Pellet Transect	
			Pellet Groups per Acre	Days Use per Acre (ha)
	'96	'01	'01	'01
Rabbit	25	41	713	N/A
Deer	39	36	1401	108 (266)
Cattle	7	1	35	3 (7)

BROWSE CHARACTERISTICS --

Herd unit 02 , Study no: 28

A Y G R E	Form Class (No. of Plants)	Vigor Class								Plants Per Acre	Average (inches) Ht. Cr.	Total					
		1	2	3	4	5	6	7	8				9	1	2	3	4
Artemisia nova																	
S	84	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	1	-	-	-	-	-	-	-	-	-	-	-	66		1	
	96	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	01	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
Y	84	-	1	-	-	-	-	-	-	-	1	-	-	-	66		1
	90	5	-	-	-	-	-	-	-	-	4	-	1	-	333		5
	96	-	1	-	-	-	-	-	-	-	1	-	-	-	20		1
	01	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1
M	84	-	4	10	-	-	-	-	-	-	14	-	-	-	933	13 14	14
	90	16	-	-	-	-	-	-	-	-	16	-	-	-	1066	15 19	16
	96	4	14	-	-	-	-	-	-	-	16	-	2	-	360	13 21	18
	01	7	1	-	-	-	-	-	-	-	8	-	-	-	160	15 29	8
D	84	-	15	20	-	-	-	-	-	-	29	-	6	-	2333		35
	90	10	-	-	-	-	-	-	-	-	10	-	-	-	666		10
	96	-	3	-	-	-	-	-	-	-	3	-	-	-	60		3
	01	2	1	-	-	-	-	-	-	-	1	-	-	2	60		3
X	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	40		2
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	100		5
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>						
'84		40%			60%			12%			-38%						
'90		00%			00%			03%			-79%						
'96		82%			00%			09%			-45%						
'01		17%			00%			17%									
Total Plants/Acre (excluding Dead & Seedlings)												'84	3332	Dec:	70%		
												'90	2065		32%		
												'96	440		14%		
												'01	240		25%		

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Artemisia tridentata wyomingensis																		
S	84	8	-	-	-	-	-	-	-	-	8	-	-	-	533		8	
	90	1	-	-	-	-	-	-	-	-	1	-	-	-	66		1	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	01	2	-	-	-	-	-	-	-	-	2	-	-	-	40		2	
Y	84	3	1	-	-	-	-	-	-	-	4	-	-	-	266		4	
	90	4	-	1	-	-	-	-	-	-	5	-	-	-	333		5	
	96	4	-	-	-	-	-	-	-	-	4	-	-	-	80		4	
	01	3	-	-	-	-	-	-	-	-	3	-	-	-	60		3	
M	84	-	11	23	-	-	-	-	-	-	33	-	1	-	2266	24	25	34
	90	11	4	1	-	-	-	-	-	-	16	-	-	-	1066	22	20	16
	96	38	26	7	-	-	-	-	-	-	60	-	11	-	1420	29	38	71
	01	28	22	2	-	-	1	-	-	-	53	-	-	-	1060	27	39	53
D	84	1	12	29	-	-	-	-	-	-	35	-	7	-	2800		42	
	90	16	8	7	-	-	-	-	-	-	11	3	11	6	2066		31	
	96	26	30	7	2	-	-	-	-	-	39	-	8	18	1300		65	
	01	24	32	12	3	1	-	-	-	-	51	-	-	21	1440		72	
X	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	1900		95	
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	1640		82	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'84		30%			65%			10%			-35%							
'90		23%			17%			33%			-19%							
'96		40%			10%			26%			- 9%							
'01		43%			12%			16%										
Total Plants/Acre (excluding Dead & Seedlings)												'84	5332	Dec:	53%			
												'90	3465		60%			
												'96	2800		46%			
												'01	2560		56%			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Chrysothamnus viscidiflorus viscidiflorus																		
Y	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
M	84	1	-	-	-	-	-	-	-	-	1	-	-	-	66	21	11	
	90	-	-	1	-	-	-	-	-	-	1	-	-	-	66	6	7	
	96	14	3	-	-	-	-	-	-	-	9	-	8	-	340	15	23	
	01	10	-	-	1	-	-	-	-	-	11	-	-	-	220	15	26	
D	84	2	-	-	-	-	-	-	-	-	-	-	2	-	133		2	
	90	-	1	-	1	-	-	-	-	-	1	-	1	-	133		2	
	96	1	1	-	-	-	-	-	-	-	1	-	1	-	40		2	
	01	7	-	-	-	-	-	-	-	-	5	-	-	2	140		7	
X	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	20		1	
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'84		00%			00%			67%			+ 0%							
'90		33%			33%			33%			+50%							
'96		20%			00%			45%			-10%							
'01		00%			00%			11%										
Total Plants/Acre (excluding Dead & Seedlings)												'84	199	Dec:	67%			
												'90	199		67%			
												'96	400		10%			
												'01	360		39%			
Eriogonum microthecum																		
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	
	96	2	-	-	-	-	-	-	-	-	2	-	-	-	40	8	9	
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'84		00%			00%			00%										
'90		00%			00%			00%										
'96		00%			00%			00%										
'01		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'84	0	Dec:	-			
												'90	0		-			
												'96	40		-			
												'01	0		-			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Gutierrezia sarothrae																		
M	84	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	
	96	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	
	01	1	-	-	-	-	-	-	-	-	1	-	-	-	20	6	4	1
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'84		00%			00%			00%										
'90		00%			00%			00%										
'96		00%			00%			00%										
'01		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)													'84	0	Dec:	-		
													'90	0		-		
													'96	0		-		
													'01	20		-		
Juniperus osteosperma																		
S	84	1	-	-	-	-	-	-	-	-	1	-	-	-	66		1	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
Y	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	1	-	-	-	-	-	-	-	-	1	-	-	-	66		1	
	96	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
	01	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
M	84	1	-	-	1	-	-	-	-	-	2	-	-	-	133	69	49	2
	90	1	-	-	-	-	-	-	-	-	1	-	-	-	66	93	63	1
	96	-	-	-	-	-	-	2	-	-	2	-	-	-	40	-	-	2
	01	1	-	-	-	-	-	1	-	-	2	-	-	-	40	-	-	2
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'84		00%			00%			00%			- 1%							
'90		00%			00%			00%			-55%							
'96		00%			00%			00%			+ 0%							
'01		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)													'84	133	Dec:	-		
													'90	132		-		
													'96	60		-		
													'01	60		-		

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Opuntia polyacantha																		
S	84	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	90	1	-	-	-	-	-	-	-	-	1	-	-	66			1	
	96	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	01	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
M	84	3	-	-	-	-	-	-	-	-	3	-	-	200	6	7	3	
	90	6	-	-	-	-	-	-	-	-	6	-	-	400	4	7	6	
	96	4	-	-	-	-	-	-	-	-	4	-	-	80	6	20	4	
	01	3	-	-	-	-	-	-	-	-	3	-	-	60	6	15	3	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'84		00%			00%			00%			+50%							
'90		00%			00%			00%			-80%							
'96		00%			00%			00%			-25%							
'01		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'84	200	Dec:	-			
												'90	400		-			
												'96	80		-			
												'01	60		-			